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Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>			<b>Complete if Known</b>		
			Application Number	<b>10/776,057</b>	
			Filing Date	<b>February 11, 2004</b>	
			First Named Inventor	<b>Daniel Ting</b>	
			Art Unit	<b>2168</b>	
Examiner Name	<b>Jay A. Morrison</b>				
Sheet	1	of	5	Attorney Docket Number	<b>112056-0139U</b>

U.S. PATENT DOCUMENTS						
Examiner Initials'	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	1	4,570,217		02-11-1986	Allen et al.	
	2	5,163,131		11-10-1992	Row et al.	
	3	5,202,979		04-13-1993	Hillis et al.	
	4	5,278,979		01-11-1994	Foster et al.	
	5	5,355,453		10-11-1994	Row et al.	
	6	5,485,579		01-16-1996	Hitz et al.	
	7	5,802,366		09-01-1998	Row et al.	
	8	5,819,292		10-06-1998	Hitz et al.	
	9	5,835,953		11-10-1998	Ohran	
	10	5,931,918		08-03-1999	Row et al.	
	11	5,941,972		08-24-1999	Hoese et al.	
	12	5,963,962		10-05-1999	Hitz et al.	
	13	5,987,506		11-16-1999	Carter et al.	
	14	6,065,037		05-16-2000	Hitz et al.	
	15	6,289,356		09-11-2001	Hitz et al.	
	16	6,425,035		07-23-2002	Hoese et al.	
	17	6,466,696		10-15-2002	Politis	
	18	6,574,591		06-03-2003	Kleiman et al.	
	19	6,604,118		08-05-2003	Kleiman et al.	
	20	6,662,196		12-09-2003	Holenstein et al.	
	21	6,748,504		06-08-2004	Sawdon et al.	
	22	6,993,539		01-31-2006	Federwisch et al.	
	23	7,007,046		02-28-2006	Manley et al.	
	24	7,010,553		03-07-2006	Chen et al.	
	25	7,039,663		05-02-2006	Federwisch et al.	
	26	7,043,485		05-09-2006	Manley et al.	
	27	7,225,204		05-29-2007	Manley et al.	

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	28	7,249,150		07-24-2007	Watanabe et al.	
	29	7,454,445		11-18-2008	Lewis et al.	
	30	2002/0078041		06-2002	Wu	
	31	2002/0178146		11-2002	Akella et al.	
	32	2002/0041211		02-2003	Merkey et al.	
	33	2003/0070043		04-2003	Merkey	
	34	2003/0158861		08-2003	Sawdon et al.	
	35	2003/0158863		08-2003	Haskin et al.	
	36	2003/0158873		08-2003	Sawdon et al.	
	37	2003/0159007		08-2003	Sawdon et al.	
	38	2004/0030668		02-2004	Pawlowski et al.	
	39	2004/0078419		04-2004	Ferrari et al.	

FOREIGN PATENT DOCUMENTS						
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		Country Code <sup>3</sup> –Number <sup>4</sup> –Kind Code <sup>5</sup> (if known)				
	40	EP 1003103 A2	05-2000	Network Appliance, Inc.		
	41	WO 00/07104	02-2000	Network Appliance, Inc.		
	42	WO 01/31446	05-2001	Network Appliance, Inc.		

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NON PATENT LITERATURE DOCUMENTS			
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	43	TING ET AL. "System and Method for Comparing Data Sets", U.S. Provisional Application Serial No. 60/531,890, filed December 23, 2003, 32 pages.	
	44	AKYUREK, SEDAT, Placing Replicated Data to Reduce Seek Delays, Department of Computer Science, University of Maryland, UMIACS-TR-91-121, CS-TR-2746, August 1991.	
	45	BITTON, DINA, Disk Shadowing, Proceedings of the 14th VLDB Conference, LA, CA (1988)	
	46	CHAUDHURI, SURAJIT, ET AL., Self-Tuning Technology in Microsoft SQL Server, Data Engineering Journal 22, 2 1999 pp. 20-27.	
	47	CHUTANI, SAILESH, ET AL., The Episode file system, In Proceedings of the USENIX Winter 1992	
	48	COYNE, ROBERT A., ET AL., Storage Systems for National Information Assets, Proc. Supercomputing 92, Minneapolis, Nov. 1992, pp. 626-633.	
	49	FINLAYSON, ROSS S., ET AL., Log Files: An Extended File Service Exploiting Write-Once Storage Department of Computer Science, Stanford University, Report No. STAN-CS-87-1177, September 1987.	
	50	GRAY, JIM, ET AL., The Recovery Manager of the System R Database Manager, ACM Computing Surveys, (13)2:223-242 1981.	
	51	HECHT, MATTHEW S., ET AL. Shadowed Management of Free Disk Pages with a Linked List, ACM Transactions on Database Systems, 8/4, December 1983, pp. 503-514.	
	52	HOWARD, JOHN H, ET AL. Scale and Performance in a Distributed File System, Carnegie Mellon University, CMU-ITC-87-068, Aug. 5, 1987	
	53	HOWARD, JOHN, H. ET AL., Scale and performance in a distributed file system, ACM Trans. Computer. System., 6(1), Feb. 1988 pp. 51-81	
	54	HOWARD, JOHN H., An Overview of the Andrew File System, Carnegie Mellon University, CMU-ITC-88-062.	
	55	KAZAR, MICHAEL LEON, Synchronization and Caching Issues in the Andrew File System, Carnegie Mellon University, CMU-ITC-88-063.	
	56	KAZAR, MICHAEL L., ET AL., Decorum File System Architectural Overview, USENIX Summer Conference, Anaheim, California, 1990	

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	57	KEMPER, ALFONS, ET AL., Performance Tuning for SAP R/3, Data Engineering Journal 22, 2 1999 pp. 33-40.		
	58	KENT, JACK ET AL., Optimizing Shadow Recovery Algorithms, IEEE Transactions on Software Engineering, 14( 2): 155-168 , February 1988.		
	59	KISTLER, ET AL., Disconnected Operation in the Coda File System, ACM Transactions on Computer Systems, Vol. 10, No. 1, February 1992, pp 3-25.		
	60	LORIE, RAYMOND, A, Physical integrity in a large segmented database, ACM Trans. Database Systems, (2)1: 91-104, March 1977		
	61	OUSTERHOUT, JOHN ET AL., Beating the I/O Bottleneck: A Case for Log-Structured File Systems, Technical Report, Computer Science Division, Electrical Engineering and Computer Sciences, University of California at Berkeley, October 30, 1988.		
	62	PATTERSON, D., ET AL., A Case for Redundant Arrays of Inexpensive Disks (RAID), Technical Report, CSD-87-391, Computer Science Division, Electrical Engineering and Computer Sciences, University of California at Berkeley (1987)		
	63	PATTERSON, D., ET AL., A Case for Redundant Arrays of Inexpensive Disks (RAID), SIGMOD International Conference on Management of Data, Chicago, IL, USA, 1-3 June 1988, SIGMOD RECORD (17)3:109-16 (Sept. 1988)		
	64	PETERSON, ZACHARY NATHANIEL JOSEPH, Data Placement for Copy-on-Write Using Virtual Contiguity, University of CA, Santa Cruz, Master of Science in Computer Science Thesis, September 2002		
	65	QUINLAN, SEAN, A Cached WORM File System, Software-Practice and Experience, 21(12):1289-1299 (1991)		
	66	ROSENBLUM, MENDEL, ET AL., The LFS Storage Manager, Computer Science Division, Electrical Engin. And Computer Sciences, Univ. of CA, presented at Summer '90 USENIX Technical Conference, Anaheim, CA June 1990.		
	67	ROSENBLUM, MENDEL, ET AL, The Design and Implementation of a Log-Structured File System July 24, 1991 pp 1-15.		
	68	ROSENBLUM, MENDEL, "The Design and Implementation of a Log-Structured File System, Copyright 1992, pp. 1-93.		
	69	ROSENBLUM, MENDEL, ET AL., The Design and Implementation of a Log-Structured File System, , In Proceedings of ACM Transactions on Computer Systems, (10)1:26-52, February 1992		
	70	SCHIEFER, BERNI, ET AL., DB2 Universal Database Performance Tuning, Data Engineering Journal 22, 2 1999 pp. 12-19.		

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	71	SELTZER, MARGO I., ET AL., Journaling Versus Soft Updates: Asynchronous Meta-Data Protection in File Systems, Proceedings of 200 USENIX Annual Technical Conference, 6/18-23/2000.	
	72	SHASHA, DENNIS, Tuning Time Series Queries in Finance: Case Studies and Recommendations, Data Engineering Journal 22, 2 1999 pp 41-47.	
	73	SIDEBOTHAM, BOB, Volumes: The Andrew File System Data Structuring Primitive, EEUG Conference Proceedings, Manchester, UK, Autumn 1986	
	74	SUBRAMANIAN, MURALIDHAR, ET AL., Performance Challenges in Object-Relational DBMSs, Data Engineering Journal 22, 2 1999 pp 28-32.	
	75	WEIKUM, GERHARD, ET AL., Towards Self-Tuning Memory Management for Data Servers, Data Engineering Journal 22, 2 1999 pp 3-11.	
	76	WEST, MICHAEL, ET AL. The ITC Distributed File System: Prototype and Experience, Carnegie-Mellon University, Technical Report CMU-ITC-040, March 1985.	
	77	ZAYAS, EDWARD R., AFS-3 Programmer's Reference: Architectural Overview, Transarc Corporation, Pittsburgh, PA, 1.0 edition 1991.	
	78	HITZ ET AL., "TR3002 File System Design for an NFS File Server Appliance", 1-10, Network Appliance, Inc., Sunnyvale, CA, USA.	
	79	"Storage Management Mechanism for Managing Snapshot Pages", IBM Technical Disclosure Bulletin, IBM Corp., New York, US, vol. 35, No. 4B, September 1, 199, pp. 26-29.	
	80	Partial European Search Report, Application No. EP 03251702, Munich, Leuridan, K., Jan. 4, 2005, 4 pages.	
	81	Partial European Search Report, Application No. EP 03251703, Munich, Leuridan, K., Jan. 4, 2005, 4 pages.	

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